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Title: Power Pole Design Specifications at Manhattan Project Quonset Hut
TA-22-1

Author(s): Brunette, Jeremy Christopher
Townsend, Cameron Dee

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Power Pole Design Specifications at Manhattan Project Quonset Hut TA-22-1

Los Alamos National Laboratory

An attachment to Historic Building Report No. 375

Survey No. 1235



Prepared for: the U.S. Department of Energy/National Nuclear Security Administration,
Los Alamos Field Office

Prepared by: Jeremy C. Brunette, Cultural Resources Manager
LANS Environmental Stewardship Group (EPC-ES)
Cameron D. Townsend, Cultural Resources
LANS Environmental Stewardship Group (EPC-ES)

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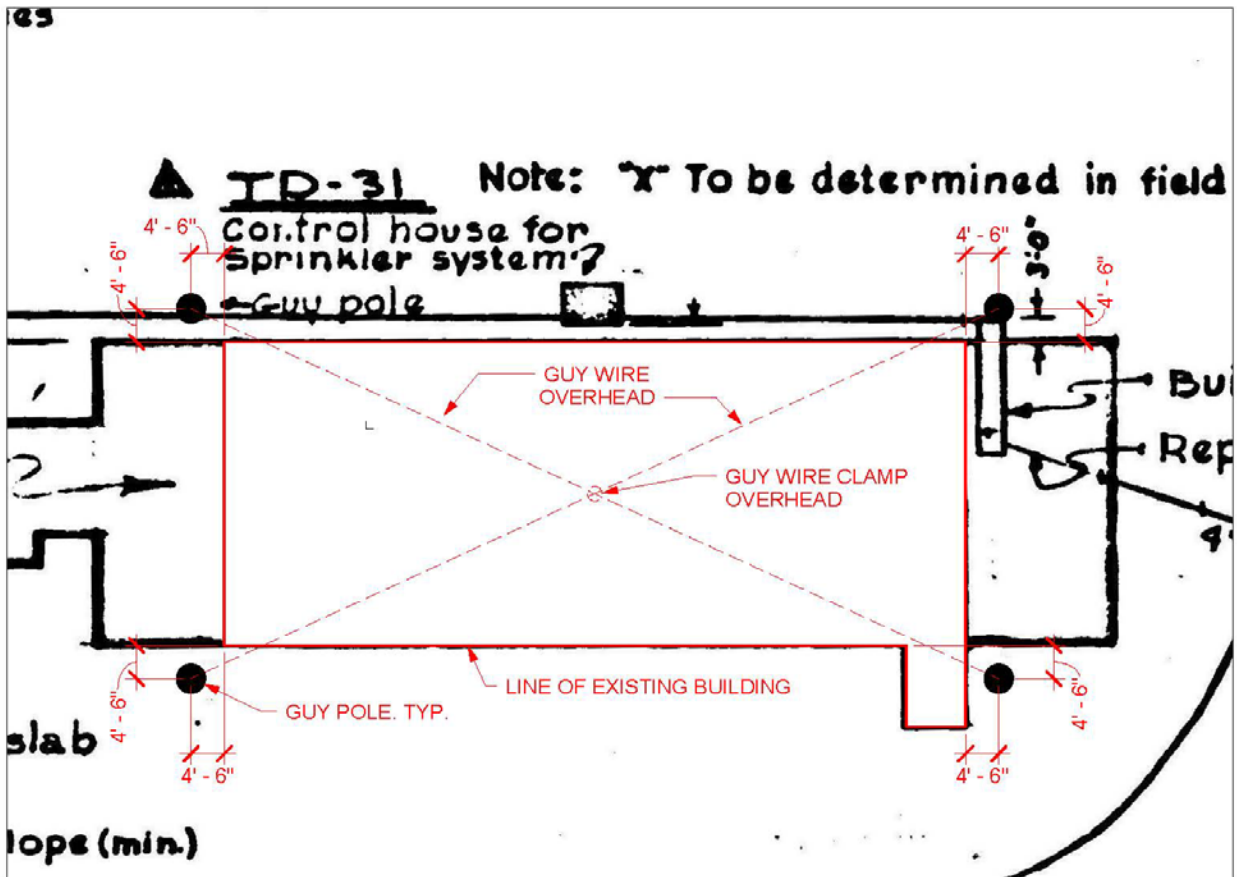
Description

To be as accurate as possible in our design, and to ensure that all materials and connectors are in-kind, we completed an extensive search of historic drawings for information on Manhattan Project era lightning protection systems at Los Alamos National Laboratory. We found one historic drawing that showed the power poles at the Quonset Hut (TA-22-1). We found another drawing from a contemporary building at TA-22 that had a lightning protection system design. We used these drawings to determine pole locations and to help with creating a material schedule.

We searched other Manhattan Project building locations for remaining components of lightning protection systems, and found existing lightning protection components at V-Site. We worked with an electrical planner to identify the components found, and used this information to ensure that the material schedule is correct.

Measurements were taken from the historic drawing to determine the location of the power poles. We used the historic photo found on page 6 to field verify the pole locations.

The annotated historic drawing below shows the installation locations of the power poles. The following pages have the material schedule and corresponding example photos that were taken at V-Site. The Catenary Original Design section on page 4 was taken from an elevation drawing dated 1945 of buildings TA-22-2, and TA-22-3 that were located nearby the Quonset Hut. Page 5 is a historic drawing showing the location of the lightning protection system's power poles at the Quonset Hut. Page 6 is a historic photograph of the Quonset Hut with the lightning protection system in place. This photo was used to field verify the power pole locations.



1 TA-22-1 GUY POLE LOCATION PLAN
1/16" = 1'-0"



Material Schedule:

Note: All photos are of historic lightning protection components identified at V-Site (TA-16-516, -517)

- Power Poles: 45 Foot Class 3 wooden power pole with top cut at an angle to match original design



4 power poles, 45 ft. Split Bolt Connector, Center of Catenary.

- Conductor Size: 1/0 CU Clad Wire



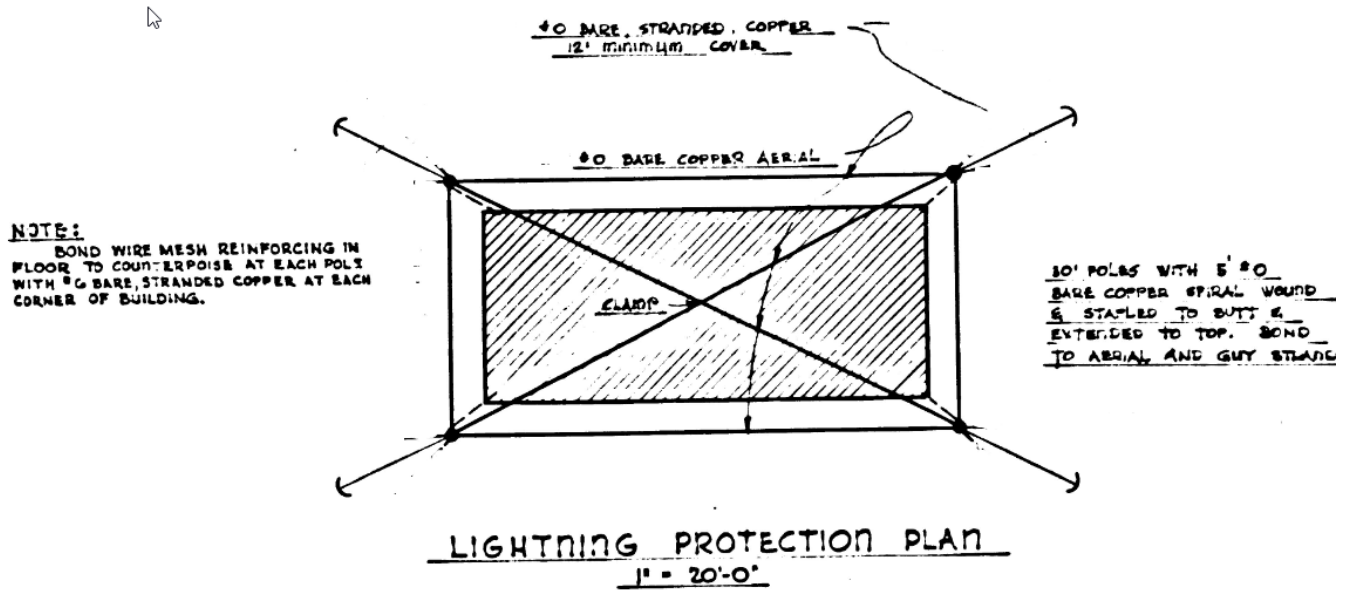
1/0 Cu Clad Conductor, Butt Wrapped

- Connectors and Attachments: Three Bolt Clamps, Split bolts, Lightning Rods, Eye Bolts, Eye Nuts, Copper Staples, Side Walk Anchors.

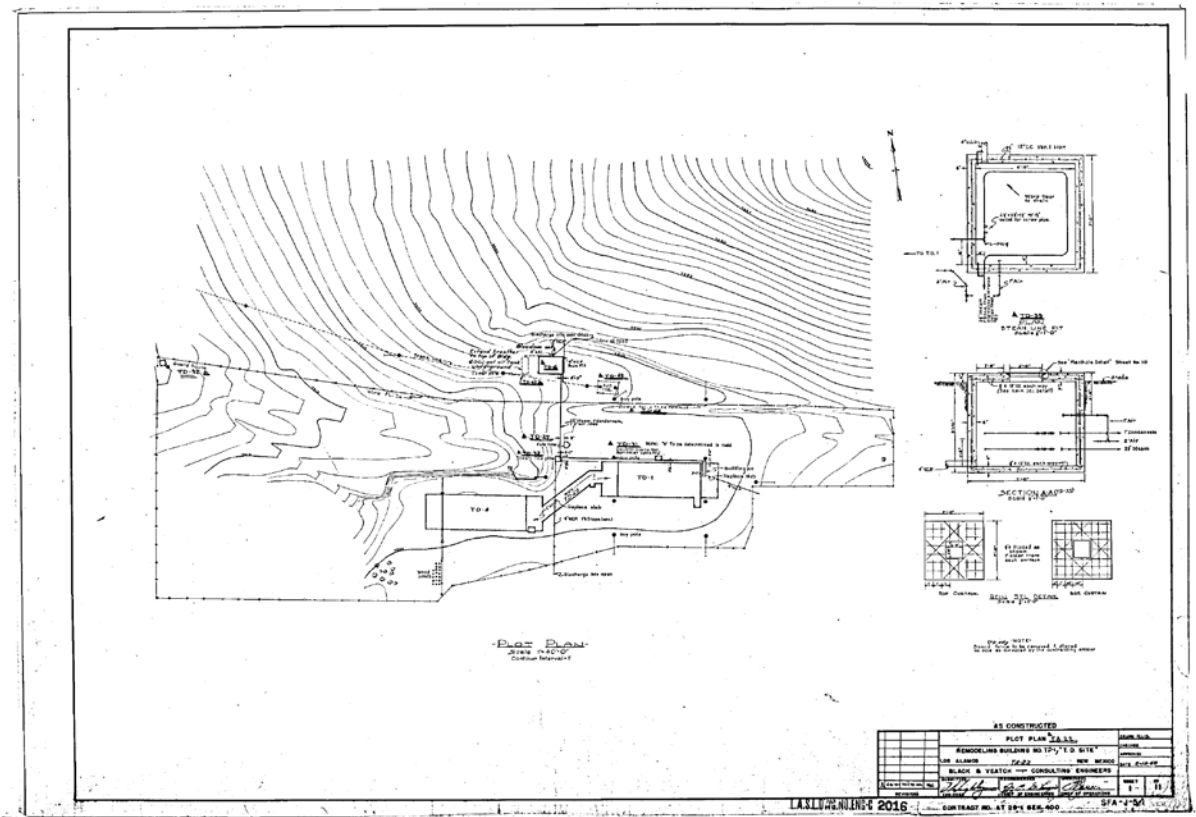


Split Bolt Connector from Pole Ground to Butt Wrap.

Catenary Original Design



Historic Drawing of Lightning Protection System Pole Locations



Historic Photo of the Quonset Hut with Lightning Protection System

